

November 18, 2005

**SUBMITTED ELECTRONICALLY**

Ms. Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, D.C. 20554

Re: ET Docket No. 04-373; SafeView, Inc., Request for Waiver of Sections 15.31 and 15.35 of the Commission's Rules; NOTICE OF ORAL EX PARTE COMMUNICATIONS OF XO COMMUNICATIONS, INC. ("XO") AND HUGHES NETWORK SYSTEMS, INC. ("HNS")

Dear Ms. Dortch:

Pursuant to the provisions of Section 1.1206 of the rules of the Federal Communications Commission ("FCC" or "Commission"), we hereby submit a notification of *ex parte* communication between the FCC's staff and representatives of XO and HNS. In particular, on November 17, 2005, Steven Doiron and Harry Johnson of HNS, Brad Magnuson and David LaFrance of XO and the undersigned counsel, representing XO, met with the following members of the FCC's staff of the Office of Engineering and Technology ("OET"): Karen Rackley, Geraldine Matisse and Anh Wride.

The attached presentation was circulated at the meeting and discussed.

If there are questions regarding the foregoing or the attached, please contact the undersigned.

Very truly yours,

/s/ Russell H. Fox

Russell H. Fox

Attachment

cc: (each electronically with attachments)  
Karen Rackley  
Geraldine Matisse  
Anh Wride

# XO Communications, Inc. and Hughes Network Systems



Presentation to FCC Staff  
Regarding ET Docket No. 04-373  
SafeView Waiver Request  
November 17, 2005



# Introduction

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- ❑ XO is the largest single holder of LMDS spectrum in the United States.
- ❑ HNS is a major manufacturer of LMDS equipment in the 24 and 28 GHz bands.

# Background

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- SafeView has requested waiver of two provisions of the FCC's rules governing Part 15 devices.
  - 15.31(c) -- requires measurement of emissions with sweep stopped.
  - 15.35(b) -- limits peak emission limits.
- HNS has demonstrated that waiver of these rules can result in harmful interference.
- SafeView's attempts to show that it will not cause harmful interference relies on flawed analyses.
- SafeView has made no meaningful attempt to reduce potential for interference.



# SafeView System Will Cause Interference

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- ❑ HNS and XO support the critical missions of the Federal agencies that SafeView wishes to aid.
- ❑ Fulfillment of those missions should not come at the expense of FCC licensees and their customers.

# SafeView System will Cause Harmful Interference (cont'd)

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- SafeView transmitter operates at 0 dBm EIRP.
- At 3 meters distance this is 58 000 uV/m.
- Section 15.209 sets limit at 500uV/m.
- Therefore, SafeView exceeds the limits by a factor of 13,000 (and transmission power must be reduced to 1/13000 to comply with FCC limits).

# SafeView Understates Interference Potential -- Indoor/Outdoor Issues

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- ❑ SafeView alleges that interference will be caused only to receivers in the same room as its device
- ❑ However, HNS studied three path loss scenarios, which demonstrate that interference can occur to licensed receivers that are not necessarily co-located.
  - 0 dB path loss scenario (separation distance of 9 km).
    - ❑ Building entrances.
    - ❑ Airport lobbies, other buildings with large glass windows.
    - ❑ Open stadiums.
    - ❑ Convention centers.
    - ❑ Shopping malls.
    - ❑ Outdoor use (DC mall celebrations, inaugural events).

## SafeView Understates Interference Potential -- Indoor/Outdoor Issues (cont'd)

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- ❑ 5 and 10 dB path loss scenario (separation distance of 5 km and 2.9 km respectively).
  - Represents reasonable engineering calculations for foliage and glass/plastic and organic building constructions.
- ❑ HNS has not taken into account the worst case scenario where the signal is enhanced by reflections, multipathing, ducting or diffraction.
- ❑ SafeView assumed “best case” building losses of 20 to 30 dB without restricting use of the device to indoor environments.
- ❑ HNS’ analysis shows that the emissions for which SafeView requested a waiver will cause harmful interference to LMDS licensees as far as 9 km away.



# SafeView Underestimates Interference Potential -- Antenna Gain

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- ❑ HNS interference analysis assumes real world fixed service antenna performance.
  - Remote: 43 dBi gain is typical for point-to-point and customer antennas. These are not extreme antennas but commonly used 2 foot diameter parabolic dishes complying with Section 101.115, Category A.
  - Hub: 16 dBi antenna gain represents the lowest gain hub antenna.
- ❑ SafeView asserts that a high gain antenna reduces the likelihood of interference.
- ❑ However, a high gain antenna with narrower associated beamwidth receives interference over a narrower range of angles *but over a much longer distance*.
- ❑ High gain antenna can not be assumed to be less susceptible to harmful interference.

# SafeView Underestimates Interference Potential -- Duty Cycle

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- ❑ Duty cycle is the percentage of time when the transmitter is on.
- ❑ However, SafeView creates its own definition of duty cycle, by erroneously including the following factors:
  - Time the signal occupies a given spectrum.
  - Time a given antenna element transmits
  - Time the transmitting array faces a given direction.
- ❑ Only by creating this incorrect definition is SafeView able to assert that its request is based on waiver of measurement method, rather than a waiver of the emission limits.

# SafeView Underestimates Interference Potential -- Multiple Units

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- ❑ SafeView asserts that the emission from 10 collocated units comply with Section 15.209(a).
- ❑ However, a single unit does not comply.
- ❑ 10 collocated units would compound the problem up to 10 times.

# SafeView Underestimates Interference Potential -- Nature of the Interference

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- Type of interference created by the SafeView equipment to licensed operators will be intermittent, with short bursts.
- Interference will result in increase of bit error rate (“BER”).
- However, LMDS technology is designed to be a replacement for fiber.
  - Enterprise customers.
  - Carrier customers.
- Fiber customers expect  $1\text{E-}12$  under normal operations.
- Type of interference created by SafeView equipment would be orders of magnitude worse.

# Changing LMDS Quality Service Materially Impacts XO's Market and License

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- Change in the level of interference (in this case a modification to the expected BER) to which LMDS licensees are subject is a license modification.
  - This can only be accomplished under Section 316 of the Communications Act, not as a Waiver of Part 15 Rules.
- Even if not a license change, a less reliable communications path changes the economics and viability of LMDS service offerings.
  - Service Level Agreements (“SLAs”) generally prescribe a minimum BER, and service below that level may excuse payment for services.

## SafeView's Offer to Mitigate Interference are Meaningless - Shielding

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- ❑ SafeView says that shielding is technically impossible.
- ❑ However, microwave absorbers are cost effective and manufactured in a large variety of shapes and sizes.
- ❑ Microwave absorbers, strategically placed on the SafeView device, would preserve subject visibility while reducing emissions.
- ❑ Shield rooms, which are commonly fabricated from low cost metallic screen, would perform a similar function.

# SafeView's Offer to Mitigate Interference are Meaningless -- Choice

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- SafeView says airports (for example) should choose whether to use a SafeView or LMDS device.
- SafeView assumes that one entity controls the RF environment.
  - However, unless the devices are literally in the same room, the LMDS users has no control over the interference caused by an unaffiliated SafeView device.
- Grant of waiver request would represent an unprecedented incursion into a licensee's ability to provide service, under FCC's defined maximum interference environments.
- Would force LMDS users to choose between mutually exclusive licensed and unlicensed devices in the same band.
- Grant of request undermines the entire purpose of Part 15 -- to permit device use only when it will not cause harmful interference to licensed devices.
  - The entire UWB proceeding was premised on this notion.

## SafeView's Offer to Mitigate Interference are Meaningless -- Rollout

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- ❑ The FCC cannot effectively -- and should not be required to -- monitor the production and distribution of these devices.
- ❑ Even if they are initially sold for indoor purposes, there is no way to restrict the re-sale or relocation of the devices.
- ❑ Maintenance of a database of devices is ineffective; at a minimum, SafeView users should coordinate with affected LMDS licensees in advance of placement of device.
  - However, even this necessary restriction demonstrates how far SafeView's proposal deviates from purpose of Part 15 for unlicensed devices.



# Conclusion

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- The FCC should enforce its Part 15 rules and deny SafeView's waiver as it stands.
- If the Commission grants a waiver, it must require SafeView to:
  - Demonstrate how it can ensure that all of its devices will always operate inside buildings;
  - Install and operate with microwave absorbers, or within shield rooms; and
  - Complete coordination with LMDS licensees for every device employed.